



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/656,696	09/04/2003	Woong-Kyu Min	YOM-0054	8570
7590		06/15/2006	EXAMINER	
Cantor Colburn LLP		MOON, SEOKYUN		
55 Griffin Road South		ART UNIT		
Bloomfield, CT 06002		PAPER NUMBER		

2629

DATE MAILED: 06/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/656,696	Applicant(s) MIN ET AL.	
	Examiner Seokyun Moon	Art Unit 2629	

– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on April 10, 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 6-12 and 18-24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☒ Claim(s) 3-5 and 13-17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Election/Restrictions

2. **Claims 6-12 and 18-24** are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Species II and III, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on April 10, 2006.
3. Applicant's election without traverse of Species I in the reply filed on April 10, 2006 is acknowledged.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claim 1** is rejected under 35 U.S.C. 103(a) as being unpatentable over Wei et al. (U.S. Pub. No. 2003/0137485 A1, herein after referred to as "Wei") in view of Funamoto et al. (U.S. Pub. No. 2003/0142118 A1, herein after referred to as "Funamoto").

Wei [fig. 3] teaches an inverter ("*light source modulator 42*") for a liquid crystal display, the inverter comprising:

an inverter controller ("*pulse width modulation controller 58*") generating a lamp driving signal ("*PWM signal 59*") having on-time and off-time, by pulse width modulating a dimming signal ("*feedback signal 56*") [par (0023) lines 13-19 and fig. 3, wherein the feedback signal 56 is inputted into the pulse width modulation controller 58, and thus a modulated signal, PWM signal 59 is outputted from the controller and inputted into the transistor Q4].

a power switching element ("*transistor Q4*") selectively transmitting a DC voltage (" V_M ") in response to a signal from the inverter controller [par. (0023) lines 19-22]; and

a voltage booster ("*transformer T2*") for driving a lamp ("*back light source 38*") in response to a signal from the switching element [par. (0023) lines 19-25].

Wei does not expressly disclose the inverter controller to generate a carrier signal for pulse width modulation and to control the on-time of the lamp driving signal in response to at least one of a vertical synchronization signal and a vertical synchronization start signal.

However, Funamoto [fig. 3] teaches a mean ("*PWM modulation pulse generating circuit 4*") generating a carrier signal ("*modulation pulse*") for pulse width modulation and controlling the on-time of the modulation (by synchronizing with the vertical synchronizing signal) pulse in response to a vertical synchronization signal.

It would have been obvious to one of ordinary skill in the art at the time of the invention to include Funamoto's PWM modulation pulse generating circuit in Wei's

inverter controller, to allow the Wei to select one of the signals having different modulation frequencies according to the motion detection result, to thereby enable reduction of image contour blurring in a moving image and reduction of flicker in a still image [abstract lines 7-10].

6. **Claim 2** is rejected under 35 U.S.C. 103(a) as being unpatentable over Wei and Funamoto as applied to claim 1 above, and further in view of Lee et al. (U.S. Pub. No. 2002/0057247 A1, herein after referred to as "Lee").

Wei as modified by Funamoto inherently teaches a mean for providing the vertical synchronization signal since the modified Wei discloses that a vertical sync signal is fed into the inverter controller [Funamoto: fig. 3], and thus is required to have a mean generating the vertical sync signal.

Wei [fig. 3] teaches that the dimming signal ("*feedback signal 56*") being provided from an external device ("*feedback circuit 36*").

Wei does not disclose the vertical synchronization start signal being provided by the signal controller.

However, Lee [fig. 3] discloses a timing controller ("*timing controller 100*") providing a vertical synchronization start signal [par. (0121)].

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Wei to provide a vertical synchronization signal, as taught by Lee, to allow Wei's display device to adjust and optimize the timing of driving gate scanning lines and thus to prevent flicker or image degradation of the display.

Allowable Subject Matter

7. Claims 3, 4, 5, 13, 14, 15, 16, and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hirakata (U.S. Pat. No. 6,636,190 B2) teaches a liquid crystal display device including a lighting device being supplied with different amplitudes for different periods.

Park (U.S. Pub. No. 2003/0178951 A1) teaches a method of driving backlight capable of reducing noises and voltage fluctuations in power voltage, for a liquid crystal display.

Terasaki (U.S. Pat. No. 5,844,540) teaches a liquid crystal display with a back-light control function being provided with a PWM dimmer driving circuit section for applying a PWM dimming to a fluorescent tube provided on the back surface of a liquid crystal panel by controlling an inverter section.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seokyun Moon whose telephone number is (571) 272-5552. The examiner can normally be reached on Mon - Fri (8:30 a.m. - 5:00 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

June 6, 2006
S.M.



SUMATI LEFKOWITZ
SUPERVISORY PATENT EXAMINER